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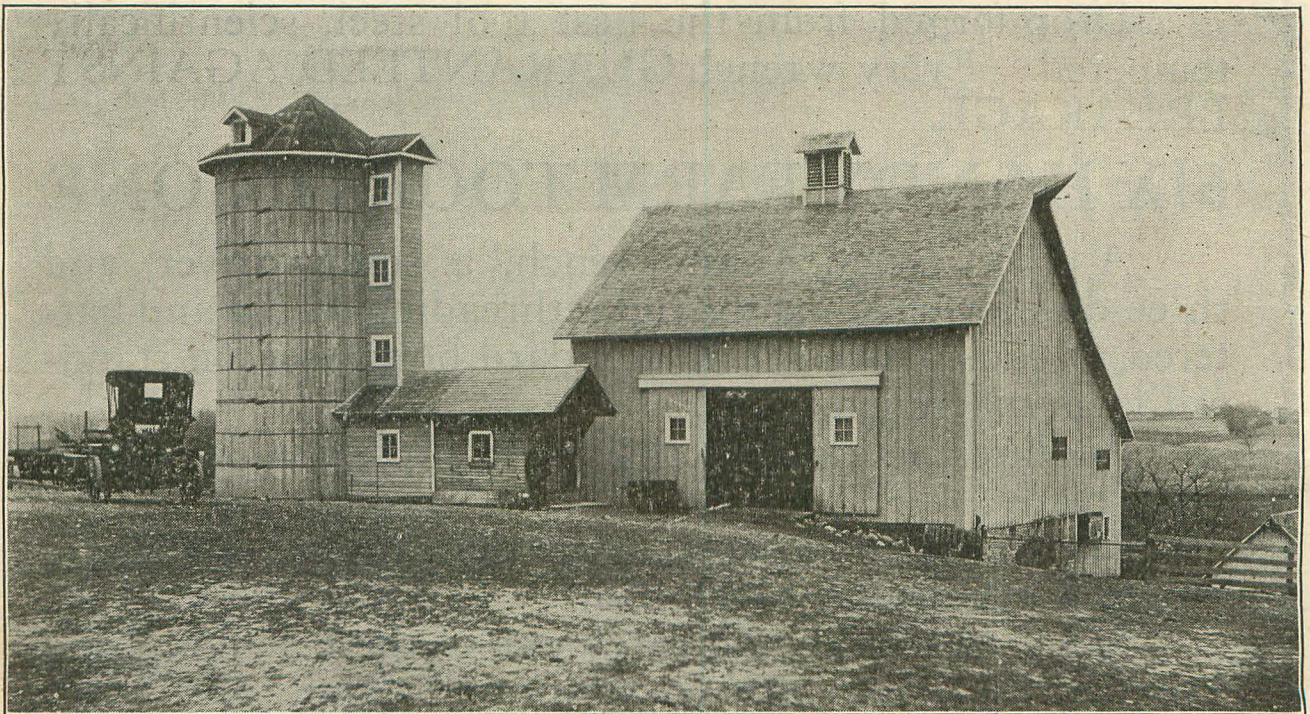


"THE NORTH DAKOTA FARMER FOR NORTH DAKOTA FARMERS"

Vol. 15 No. 2

Lisbon, North Dakota, August 15, 1913 50 Cents A Year

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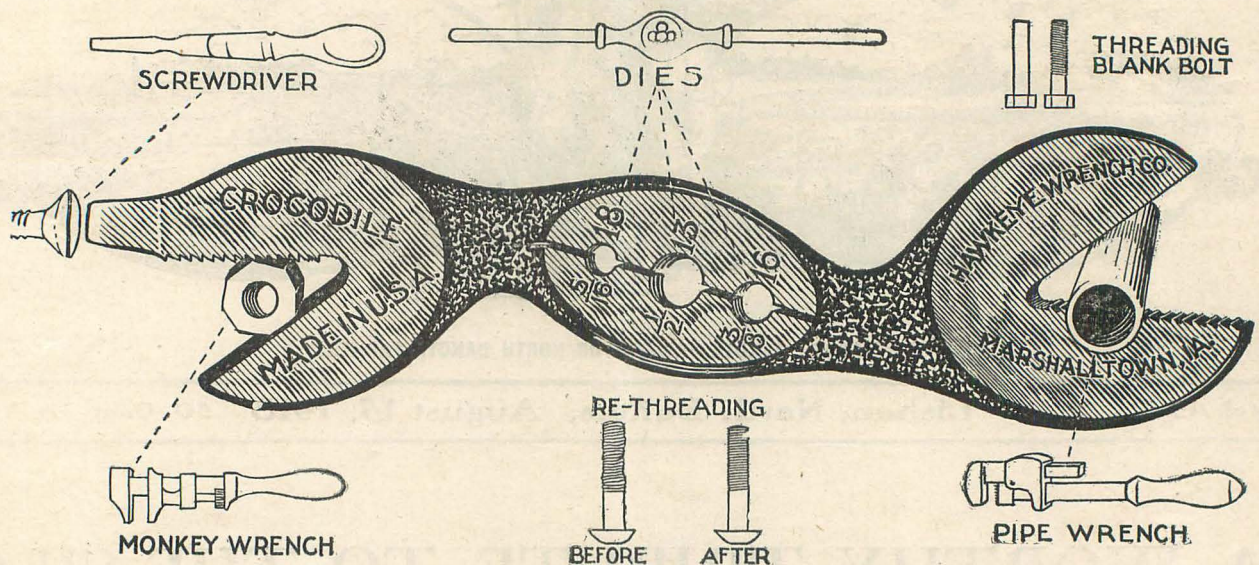
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THE NORTH DAKOTA FARMER

Vol. 15, No. 2

LISBON N. D., AUGUST 15, 1913

50 Cents a Year

WILSON WHEAT

By Charles Cristadoro

How many of my readers remember, those in the 80's, because of the drouths, that the then Secretary Wilson was appealed to by the farmers from the dry-lands for "some kind of a crop that could be made to grow" and that had a price in the market? The farmers really wanted a drouth-resisting wheat and Secretary Wilson naturally looked to the dry-lands of wheat-growing Russia and sent Prof. Carleton across to investigate. He found that from the various sections of Russia different qualities of hard wheats were grown, the most successful of all being the strain known as Kubanka. This wheat was so prized that on all the wheat exchanges "Kubanka wheat" sold at a premium, just as had No. 1 Northern, and just as is durum wheat now selling at a premium, this same Russian Kubanka wheat grown in the Dakotas. The farmers, who have for years been selling their durum at 20 to 30 cents per bushel under No. 1 Northern, because it was durum and durum had been given a bad name, no doubt are surprised to see that discount wiped out and durum heading the list in the wheat markets. How many farmers remember when Prof. Carleton returned from Europe in the 80's and brought home 10,000 bushels of seed durum wheat and same was distributed, and planted and the first crop figured up 100,000 bushels by the growers, and how when offering this wheat to the elevators, they refused to buy the flinty, pig knuckle stuff, and told the farmers to gitelouthere and go home and feed it to the hogs? It has been a long hard fight for the last fourteen or fifteen years for durum, even to find a place way down the list in the market.

But durum wheat has always been durum wheat and the qualities that today put it at a premium existed with the first crop harvested, but the millers would not grind durum wheat, because of its hardness. Durum is the

richest wheat in gluten of all the wheats and, grown under drouth conditions, the hot sun bakes that wheat as hard as flint. It also contains more sugar than do other wheats and orange and grape growers save the sugar that comes out of the sun's rays and durum, under a drouth, gets plenty of those.

There was nothing the matter with durum wheat except that the millers needed to temper their rolls a little harder and learn the "know how" of tempering durum before grinding. And these they soon learned, as in

our exports of durum down to 500,000 bushels only, when, because of the superiority of our durum, we might just as well be exporting 25 millions of bushels or more. Foreign buyers of durum abroad think they have been "stung" as to the grading, etc., of durum exported from the U. S. and are buying of Russia, Arabia, etc.

So in tracing up the history of these millions of bushels of durum we know they were not used for seed wheat; and we know they did not go abroad to make macaroni in France and Italy to be returned in part to America. Our durum wheat traveling from the Dakota prairies to Europe, 4000 miles and over, being made into macaroni and again shipped, as macaroni, to the United States and such imported mac-



Charles Cristadoro

A "Shut-in" of Loma, California, for years a contributor to the N. D. F.

the old days they had to learn in the case of Minnesota Spring and Turkey Red. They, too, bothered the millers. But there is a great mystery as to where all the durum goes, for as much as 50,000,000 bushels, from all sources, have been harvested in a single season. Where did these millions of bushels go, for they were certainly used for some purposes other than seed wheat and put back into the soil again? Careless grading and cleaning reduced

aroni made of durum wheat back again on the shelf of a Dakota grocer, Durum traveling over 8000 miles! Our American manufacturers are trying to make macaroni, and those alone who use the genuine Semolina from durum wheat are succeeding. It is because of the improper, almost fraudulent and abundant use of soft flours in the manufacture of macaroni, instead of Semolina, that we annually import over 100 millions of pounds of genu-

ine macaroni into the United States, when every pound of it should be made at home from our home-grown durum wheat.

So we'll be generous as to our exports, amply so, and charge up 1,000,000 bushels of durum to export trade and 9,000,000 bushels as used in our domestic macaroni trade, both estimates liberal in this particular case and to allow free and safe figuring. We have 40 millions of bushels of durum to account for. Where did it go?

There was a theory amongst bakers that durum patent flour was so yellow, as a bread maker, that a loaf of durum bread would be mistaken for a loaf of graham or rye bread. Whilst, as a matter of fact, if a baker is using the right kind of a mixing machine, that works air cells abundantly into the dough, he can make as white a loaf of bread from durum patent as from any other flour.

Anyway, there are 40 millions of bushels of durum wheat, the finest bread wheat in the world, we are trying to find out about and on the face of it, as to miller and baker, neither have any use for this wheat. But as I have stated when spring comes around the durum market is clean, the elevators are empty, the 40,000,000 bushels of durum have vanished—Wheat is a good thing to throw into the shallow lakes to bait carp, bullheads and to attract wild ducks. But that quantity of wheat would feed a good many, too many carp, bullheads and ducks. So it was not used for bait. Nobody would be harmed by baking durum patent flour into bread. In fact, some years ago, April 1903, the U. S. Department of Agriculture, Washington, D. C., arranged that a prominent baker make a comparative baking from a barrel of Minnesota spring wheat and a barrel of durum patent. Three hundred loaves, one of each were sent to three hundred separate persons, expert millers, bakers, domestic scientists, etc., whose opinions were asked as to loaf X (durum) and loaf (P) Minnesota Spring and 75% of the opinions received favored the X (durum) loaf as the better of the two—and nobody in particular objected along color lines of crumb or crust.

Then, again, the editor of a New York bakers' publication had the August Schinkel, an old and experienced New York baker, do as did the Government, bake up a barrel of durum patent alongside of a barrel of Minnesota spring patent—and try the bread on his trade. So much had been said along the lines of urging the bakers to try durum flour, and its qualities had been so extolled, that

the editor decided to prove it one way or the other. Here is Mr. Schinkel's report:

"That durum flour yielded 16 pounds more dough to the barrel than did the Minnesota Spring wheat flour; durum had a higher water absorption; the grain of durum was even, close and fine; the durum loaf had a rich, creamy color which was very pleasing and looked as if milk and malt extract were used, altho neither were used. The durum loaf, on the whole, presented a much better appearance, the rich, brown crust giving an impression of richness and solidity. Sugar need not be added to durum flour. It is particularly rich in sugar, which explains the bloom and good appearance of the loaf. The durum loaf had a very agreeable taste and was fully as satisfactory.

"Agreeable to eat and still moist, even after the fourth day. It yielded 333 pounds of dough to the barrel, 16 pounds more than Minnesota spring wheat flour.

"As to the Minnesota spring wheat flour loaf, it provided a larger looking loaf; was white, as usual. It could no longer be eaten when the durum loaf was still moist and palatable. It had a better expansion in the oven than the durum loaf.

Now, Prof. Ladd knows all about blending flour and how a strong, virile, glutenous wheat, like durum, will brace up any weaker flour when blended with it. And when the bakers get a particularly strong flour, that ferments well and holds up well in the oven, and makes a rich blooming crust, they like that kind of a flour and prefer it to other flours and call for more and more of it.

So maybe millers, being able to buy durum at the elevators at 25 and 30 cents under the market, and finding out how to grind it and make A1 patent out of it, and that it is an ideal blending flour and can go out at the full price of A1 flour, use some of it in blending.

Let us see how far 40 million bushels would go on a 50% blend basis. Just for figuring purposes we'll assume that it takes five full bushels of durum to make a barrel of flour, which of course is too liberal. That means 8 millions of barrels of durum patent and if these were sold at full market flour prices based on No. 1 Northern prices at the elevators, the difference of 30 cents per bushel would mean a discount of \$1.50 per barrel—yet it is assumed that because a miller was able to make his flour better by blending durum into it he did not go out and cut the price of his flour forthwith, just because it had durum in it.

Statistics roundly show five bushels of wheat to each inhabitant, that would mean more than 100,000,000 barrels of flour consumed. If the eight million barrels of durum patent from the forty million bushels were blended 50%, sixteen millions or nearly one-six of our flour was "adulterated" with durum ("adulterating" silver by adding gold to it!); if but a 25% blend were used of course thirty two millions of barrels of flour contained durum and the bakers and housewives were none the wiser of the fact that they were using an adulterating durum wheat in their flour that the fool farmers, disorganized and non-co-operating, sold at 20 to 30 cents per bushel less than the market, just because it was durum flour, had a "bad name" as a "no account flour" and for no other reason.

The fool durum farmer—in the aggregate—who lets his 75 million crop of durum go at 30 cents under the market, for no good reason at all, "throws to the birds" a little matter of \$22,000,000. If we assume that the total durum wheat harvests to date aggregate say 400 millions of bushels from 1890, from all sources, the Dakotas and elsewhere, then the durum farmers have, as it were, organized themselves into a gigantic charity organization society for the benefit of indigent elevators and have dispersed in charity a matter of \$120,000,000, in the way of discounts, on their crops to date.

If Mr. Hill had not induced the northwestern farmers years ago to cease being "all wheat farmers" and go in for dairying, stock and diversified crops, farm bankruptcy would have made two or more "streaks of rust" out of the Great Northern and Northern Pacific roads.

They accuse Mr. Hill of, like Dick Croker of glorious Tammany fame, "figuring for his own pocket all the time," but in Mr. Hill's case it looks as if he had done a little long-headed figuring for the farmers at the same time.

Here's an object lesson for the durum farmer.

Cross sections of grains of durum spring wheat.

No. 1, dry farmed. Flinty and rich in gluten, the muscle forming element in flour.

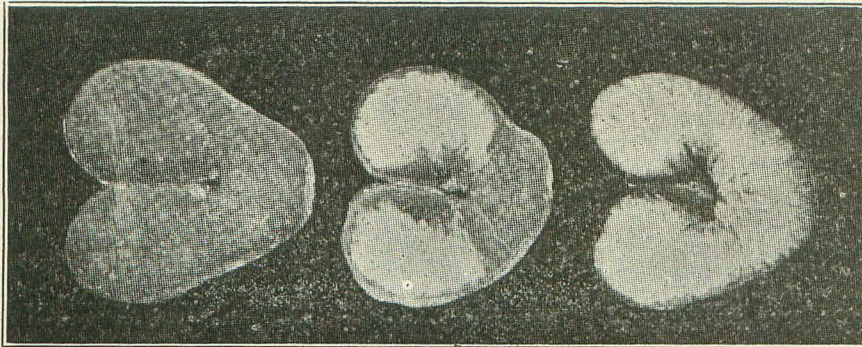
No. 2. Grown on moist land, showing presence of starch.

No. 3. Grown under excessive irrigation, high percentage of starch.

Illustrating the fact that rainfalls sealed in the ground by dry farming methods, is the best "irrigation," it being nature's way.

And here are some figures that speak for themselves:

It is estimated that the British moist land grown wheat crop contains 180,000,000 pounds more water and 380,000,000 pounds less gluten, the "lean of the meat of the wheat," than an equal amount of perfect grown hard wheat, and the following plate demonstrates this, and most conveniently.



No. 1

No. 2

No. 3

France buys her wheat on moisture and gluten content and our people are gradually leaning that way. Bakers will come to a custom of buying flour upon its gluten content—and durum flour is the richest in gluten of all the wheats, barring none. If bread were bought on a gluten content basis naturally durum bread would lead all the rest.

And how many farmers of durum wheat have the horse-sense when buying their flour at the groceries to call for durum patent and see that it is branded durum patent? Is this not patronizing home industries? If not I would like to know.

Four or five years ago, to induce the farmers of North Dakota to try bread made from their own flour I induced Gov. Burke to proclaim a "Durum Bread Day." And he "proclaimed" alright, (I have the original proclamation) but it fell as flat as a pancake. The farmers and those affiliated with the farmers and dependent upon the crop failed utterly to get the idea of demonstrating that durum patent flour would make the best of all breads and that getting the durum bread habit. Its never too late to mend, even at this late day.

But I must draw to a close—one word on "Wilson Wheat."

The farmers sent out a cry as if from Macedonia for Secretary Wilson to find them a crop that would resist drouths and grow. He found them the crop, durum wheat. When Secretary Wilson introduced durum wheat he did the most useful and important of all the great things done by the U. S. Department of Agriculture, from the establishing of the Department to date.

Durum is simply a Latin term meaning just hard, nothing else. There are perhaps fifty or more kinds of durum wheat, America favoring the Kubanka and Arnautka strains.

Why not, in appreciative justice to James W. Wilson, now a plain and good citizen of Tama, Iowa, a type of an old Agricultural Roman, call durum

wheat, at first "Wilson Durum Wheat" and finally just "Wilson Wheat?" That's all.

The great plains of the southwest are to feed the east, was Secretary Wilson's prediction and he had in mind the 600 odd millions of acres, more or less, of semi-arid, arable, dry-farming wheat-lands, above the irrigation ditches, between the Pacific Coast and the Rocky Mountains. On such lands by dry-farming methods, with a 12 to 18-inch rainfall can be grown 40 to 50 bushels of Turkey Red winter and 20 to 30 bushels of spring durum per acre.

And upon the horizon of the farmers of the great southwest, immigrants via the to-be-opened Panama Canal, is looming up in golden importance, like a guarantee of prosperity, the Burbank Spineless Cactus that grows green fresh fodder the year round; produces 20 to 30% more milk than alfalfa; that is meat and drink for the cattle, an ideal hog, stock generally, and poultry food; and, preposterous as it may seem, yields annually and keeps on yielding indefinitely 100 to 200 tons per acre. Thus does Luther Burbank, who has made good on everything he has so far evolved, claim:

The tremendous import of Burbank's Spineless Cactus to the development of the semi-arid regions of the world no man can figure out if all that Mr. Burbank states rings true, and such is his habit.

We will, in due course, import neither butter nor beef and surely a fair percentage of those semi-arid acres should yield a quota of wheat, Turkey Red and Wilson to go around, and with some to spare.

A golden era of prosperity agricultural awaits the great southwest consequent upon the opening of the Panama Canal and because of its being the nearest port to the Panama Canal and to be the great center for milling, packing, steel and ship building and manufacturing on the Pacific Coast, San Diego, California is to be the banking center of the coast and the first real city of 1,000,000 inhabitants. The whole southwest is San Diego's backyard. In 1915 it holds its great exposition. Come and see.

SOME FUNDAMENTAL FACTS WORTH CONSIDERING

By Pres. J. H. Worst, N. D. A. C.

Every country has its advantages and disadvantages. A wise Creator never intended that any one locality should enjoy all the good things nor that any locality should be without some evils to combat. And very often the evils we most dread are really blessings in disguise. That is, the trouble and worry they impose upon us is really the sort of exercise our minds and our bodies are in need of.

Take weeds as an example. Weeds, thruout the state, are becoming not only a nuisance but are destructive of many, many millions of dollars every year. Weeds rob the soil of moisture as well as of fertility. Robbing the soil of moisture, to say nothing of fertility, is a very serious matter in a

country that only receives just enough annual precipitation to produce a good crop every year, provided the farmer does not allow the weeds or his faulty methods of cultivation to waste any considerable portion of it. If the farmer does not cultivate his land with a view to the conservation of the moisture, then he has no license to expect a good crop, any more than he might expect to secure a good crop if he planted corn in the woods.

The essential element in all semi-arid countries is moisture and certainly the farmer should give due consideration to the most "essential element." But he does not always do this.

In fact, he seldom does. He goes on year after year, hugging the de-

lusion that maybe it will rain just when rain is needed and in sufficient quantity to serve the needs of the growing crops. Some pious farmers even pray for rain. If God dealt with men as formerly and spoke to them directly as He did to Moses, He doubtless would say, "Get up off your knees and take your teams and farm implements out and wage an intelligent warfare against the weeds. Kill them root and branch—all of them. Then plow deep, cultivate your soil a-plenty; keep a granulated mulch on the soil, as much as possible, and your crops will not fail for want of moisture. Moreover, you must be honest with your farm. If you take from it you must give to it. It is just as wicked for you to rob your soil as to rob your neighbor and more so for the soil must produce food and clothing, not only for this generation but for all future generations, as well.

"Keep plenty of livestock, therefore. Drought does not often injure livestock and the manure they leave on the farm will compensate the land for what your bread grains take out of it. The humus (manure) they produce will very materially aid in conserving that moisture the clouds shed upon the fields. For humus not only retards evaporation but so enriches the soil that only a trifle more than half as much water is needed to produce a crop as where your practice of soil robbing makes the soil so poor that a much greater quantity of water must be pumped thru each plant in order to furnish it with sufficient plant food to insure its maturity. Get off your knees, therefore, and go to work. Read the agricultural newspapers and the experiment station bulletins and profit by what you read. Kill the weeds. The process of killing them is

exactly what the soil needs in order to be kept lively and in good tilth."

Now, of course, God does not speak to men in exactly this manner. He has written His laws in hieroglyphs but, when interpreted, would read about as above. Under any circumstances, it pays to give the soil abundant cultivation, but with many this would be neglected if weeds did not make it necessary. In too many instances, it is neglected anyhow. The present season affords ocular demonstration that should convince any one of the value of good cultivation. Fields lying across the road from each other show that drought greatly impaired the yield of one field while the other shows no indication of insufficient moisture, and yet there is no material difference in the soil or in the amount of rainfall. There is a very marked difference in the crop, however, but the difference is in the men in the methods that were employed.

Wild oats, to say nothing of other weeds, are rapidly spreading over the farming districts. They must be eliminated somehow or they will eliminate the profits from farming. Nature did not anticipate a joint partnership with weeds, in this state; at least she did not make provisions for such co-operation. Nature furnished just about enough moisture for good crops, provided none of it is needlessly wasted.

What is the remedy? asks a host of farmers. Well, the remedy is not an easy one. Summer fallowing; cultivating the land a year or two with such crops as potatoes, corn, or growing early barley, millet, etc., are helpful, but then the foul seed from farms where the weeds are allowed to flourish reseed all the adjacent lands again, in a short time. The trouble is there are too many acres under the plow for

the quantity and quality of farm help that is available. Our farmers are doing, under the circumstances, the best they can. Our system of farm management, however, is wrong. The true remedy is to engage quite extensively in raising livestock—so extensively in fact that what land is devoted to the production of small grain can be rotated and so thoroly tilled that the influence of weeds will be practically eliminated. The moisture thus conserved and with fertility insured for the farm, together with the more thoro cultivation the land can be given on account of the smaller portion of it that will be given over to wheat and other cereals will go far toward placing the business of farming on a permanently profitable basis. Every crop necessary for supporting animal husbandry, moreover, is a weed killer and the livestock are both mortgage lifters and producers of the best quality of fertility.

When the farmers of North Dakota engage largely in breeding and feeding livestock, our commonwealth will advance, financially, with leaps and bounds.

A POTATO UPLIFT MOVEMENT

Wm. Stuart

The potato industry of the United States while a very considerable one, is by no means so important as the extent and population of the country would seem to justify. The present average production of potatoes per acre in the United States is less than half that of either Great Britain or Germany. When the total average annual crop is compared with that of Germany it is found that we produce but a trifle over one bushel for every five produced by the German farmer. It is

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eminently fitting that the American farmer should inquire why the German empire with an area of 208,670 square miles and a population of approximately 65,000,000 people should produce nearly five times as many bushels of potatoes as the United States with an area exclusive of Alaska of 2,970,230 square miles and a population of about 90,000,000 of people.

How do the German people dispose of such quantities of potatoes? This is a question to which the American farmer has as yet given too little consideration, but it is one which from now on should seriously engage his attention. Briefly summed up it might be stated that the German potato crop is, on the average, disposed of about as follows: 28% is used for table purposes; 40% is converted into stock foods; 12% is used for seed purposes, and of the remaining, 4% is converted into starch; 6% alcohol; and 10% decay. Certain quantities are, of course, exported to other countries where prices are sufficiently high to make such disposal more profitable than for industrial purposes.

What becomes of the American crop? The disposition of the American crop is a comparatively simple proposition; about 87% is used for table purposes; 12% for seed and 1% or less is devoted to starch manufacture or is fed to stock. Generally speaking that which is not used for table purposes or for seed represents the culls, and diseased stock.

Under existing conditions our present potato supply is a fluctuating one, and in consequence the prices received by the producer and paid by the consumer varies very widely. In a normal growing season thruout the United States the production is ample for table purposes and prices are moderate. In an unfavorable season the crop is not sufficient to meet the market demands and the price is high. In Germany, on the other hand, a short crop simply means that the table stock is supplied from the 40% which is ordinarily converted into stock food, hence there is no wide variation in prices as in this country where no such reserve supply is available.

Can potatoes be profitably grown in this country for industrial purposes? How can we avoid seasons of abundance and seasons of scarcity with their consequent price fluctuations? These are questions which are national in their scope and of nation-wide economic importance. They

can only be successfully handled thru state and local associations acting in co-operation with a national organization. To meet such a situation "The National Potato Association of America" has recently been organized. The present officers of this association are as follows: President, W. A. Martin, Houlton, Maine; Vice-President, E. H. Grubb, Carbondale, Colorado; Secretary-Treasurer, William Stuart, U. S. Department of Agriculture, Washington, D. C.

The objects of the Association as set forth in the constitution are to bring together for mutual co-operation and co-ordination of effort all agencies interested in the production, transportation, distribution and utilization of potatoes, and the promotion of the potato industry in all its phases.

HOW TO GROW AN ACRE OF CORN

Do you know how to grow an acre of corn? Of course, you say, but deep down in your heart, seriously, is your acre of corn producing what it should? As an answer to this consider that for no 10-year period has the corn yield of the United States exceeded 28 bushels per acre. No state has averaged for any year over 54 bushels per acre, yet in practically every section of the United States yields of more than 100 bushels have been produced. Jerry H. Moore of South Carolina, a boy

corn grower—the champion of two years ago—produced 228 bushels of corn from a single acre. As states and as a nation twice as much land is being used and much more labor is being performed in producing the corn crop than is necessary.

The possibility of doubling our acre yield of corn is so certain and its accomplishment of such tremendous importance that school, state, national, and independent organizations of corn clubs and

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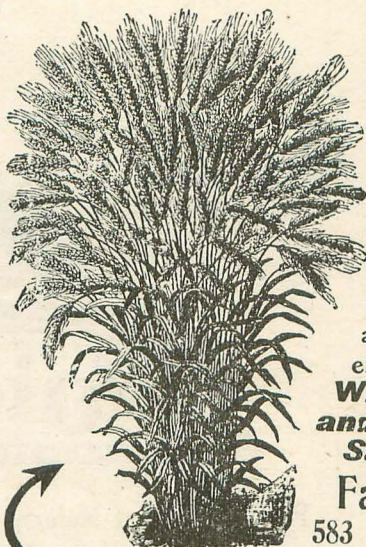
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FARGO, NORTH DAKOTA

associations of corn breeders and corn growers are helping in a way that will lead to success.

Because of the demand for information as to the best methods of growing large and profitable crops, the Department of Agriculture has recently sent out Farmers' Bulletin 537 on "How to Grow an Acre of Corn," by C. P. Hartley, issued for the general guidance of boys either as individuals or as members of clubs and associations. Exceptional and local conditions are not discussed, but general and fundamental requirements of the crop as gained by experiences in many parts of the United States are given as a foundation upon which to utilize and apply local experience and instructions from those possessing such experience.

According to Mr. Hartley our weakest defense is our vast acreage of poor corn, the culture of which is impoverishing farms and farmers. The possibility of doubling the acre yield of corn has been demonstrated in many and remote sections of the United States, so that strict adherence to the motto "Fewer acres and more corn to the acre" is certain to gradually raise the acreage yield of county, state and nation.

The new bulletin is addressed chiefly to the boys, for they are the men of the future, and also because it is felt that by interesting them in corn growing thru club work, the farmer of tomorrow will not practice according to his father's plan but will profit by the experience of others and adapt their practices, so far as possible, to the actual conditions around him.

AN IMPORTANT MEASURE THAT FAILED

Among the important measures which Congress failed to adopt and in such action created deep regret among many prominent men and interests of the Nation was the Lever Agricultural Extension Bill. Probably no measure of wider importance, more beneficial possibilities and direct and indirect bearing on the welfare of the country has been before the public.

The plan was simple and logical. It led up to and crystallized a sentiment which has manifested itself in many ambitious and practical plans conducted independently and by civic, industrial and political organizations and public-spirited individuals. It contemplated bringing directly to the individual farmer the great knowledge gathered by the Department of Agriculture, the state agricultural College and the state experiment station. It was simple of operation from the fact that it created no new machinery, the federal and state governments uniting in supporting a system, directed and supervised by the state agricultural college, of maintaining a skilled agricultural adviser in every agricultural county in the United States. The matching of federal appropriations by state funds, the distribution according to the agricultural population, the super-

vision by the state agricultural college, the plain and workable plan, all made up desirable and practicable legislation and economic operation.

Unfortunately complications arose by reason of the Page vocational education bill, including as one of several different provisions a section designed to cover the same ground as the Lever Agricultural Extension Bill. The Page measure was very broad in its scope and revolutionary in its character, and from a legislative standpoint it proved exceedingly difficult to put in practical form for passage. The suggestion was made to subdivide this bill into the three distinct propositions which, according to its author, it contains, this would have greatly simplified and facilitated its passage. The Lever Bill was carefully worked out and it passed the House by unanimous vote eight months from the date of its introduction and came out of the Senate Committee, with a recommendation that it be passed, in December. In a word, the Lever bill, was in shape for passage while the Page bill proved too complicated and indefinite.

EXPLORATIONS IN CHINA

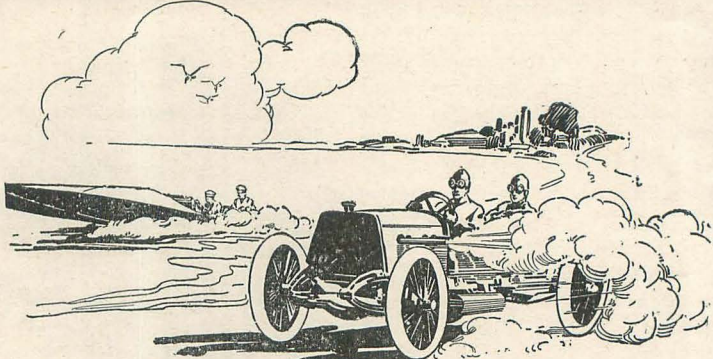
Richard Hamilton Byrd

Explorer Frank N. Meyer of the Department of Agriculture has felt the spirit of wanderlust once again and this week de-

parted for another exploring trip thru China. Mr. Meyer returned about two months ago from a two years' tour in the most inaccessible parts of Manchuria, central Siberia and the edge of European Russia and Chinese Turkestan, and at that time he declared that a roll top desk looked so good after his wandering that he would never again get farther away from one than a street car would take him, but the lure of the wilderness was too strong and he is off on another lengthy tour.

This time he will visit the cold, dry region of China and an almost unexplored section by white men. Proudon, the English botanist, tried to get in there two years ago, but failed. The region is the province of Kansu, the most northwestern of the Chinese provinces. There has never been an agricultural explorer there before.

On his last trip Mr. Meyer was especially interested in finding drought-resisting trees and fruits. He found some trees that stand an absolute Arctic temperature with no rain to speak of and sent back specimens that will be tried in some of the cold and arid sections of the northwest where no trees have been grown before. To get these specimens he spent seven months in the desert region of eastern or Chinese Turkestan, which lies between the Karakoram Range of the northern Himalayas and the great Tien Shan Range of



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western Mongolia. On foot or in native carts he passed from oasis to oasis of this desert region studying the native fruits and grains. This was accomplished with much difficulty, but his survey was made so carefully that it will probably be unnecessary to go over this ground again. Mr. Meyer crossed the Tien Shan Range, passed thru Kuldja and along the northern slopes of the Altai Mountains, and worked his way into northern Siberia, where he collected seeds of forage crops and grains.

In no previous exploration work were the difficulties of getting live cuttings thru to Washington so great, but by means of postal shipments Mr. Meyer successfully sent from the interior of Chinese Turkestan such cuttings as willows, poplars, plums, apples and various ornamental plants, altho they required a month to reach the Department in addition to several weeks of transport by caravan.

It is understood that Mr. Meyer will search the Kansu province of western China for hardy pears, jujubes and persimmons of that region.

THE ROAD QUESTION

C. F. Chase, Prof. Agricultural Engineering, N. D. Agri. Col.

At the home farm in southeastern Nebraska there is a stretch of road one-half mile in length that we have dragged for seven years. Only once during this period has this road been worked with anything but the drag. Two years ago the side ditches were cleaned with the common road grader.

A careful record of the time taken to keep this road dragged has been kept and for the first five years it runs as follows: Two trips for one man and one team requiring one hour's time for a single dragging is the basis taken. The first year we dragged it 15 times, the second 13; the third 17, the fourth 12, and the fifth 14 times or 71 draggings of one hour's time during 5 years. This at 30 cents an hour for man and team is \$4.26 a year for the one-half mile. For a mile it would be \$8.52 annual cost of maintenance. Another road in the immediate vicinity cost less than \$10 per mile annually. The soil is not quite as heavy as Red River soil but the rainfall is a little more than 30 inches. A case is

noted in Public Roads Bulletin 48, U. S. Dept. of Agri. where the cost of similar maintenance of roads in Arkansas was \$11 per mile. State Engineer Geerhart of Kansas puts the range of cost for dragging at from \$4.00 to \$10.00.

The cost for North Dakota should not be over \$10 per mile, while in most cases it would be much less, the cost depending upon the character of the soil, the rainfall, traffic and grade. As an average for all dirt roads I would place the annual cost of maintenance at \$7.50 per mile or \$460,740 to drag in a satisfactory manner the roads in North Dakota one year.

The total expenditure on Public Roads of North Dakota outside of towns in 1911 was \$691,540. If properly organized and if the people were educated we could properly maintain our earth road with present road fund and have \$230,800 left for bridges, new construction, etc.

The question of organization and legal procedure is a most difficult one. I well remember when a youth of 14 years, merely large enough to drive our team of old steady mares, it was my privilege to work the road and pay our road tax. This road work was a great delight to me at that time because usually the neighbor boys of my age worked with me with an equally efficient team of old plug horses. We never worked the old horses hard for two reasons; one was their hide was tough and they wouldn't and the other they couldn't work hard if they would. My older brothers could handle a cultivator

or a plow so they worked at home. As I recall the roadboss occupied his exalted position on a spring seat in the shade of a large cottonwood the greater share of the time. Nevertheless we were there on time, unhitched at the proper time and drew the full wage of team and teamster. We didn't believe in it but others did that way.

As far as I am able to learn there is no law in North Dakota especially for the benefit of road dragging.

The Office of Public Roads recommends the patrol system combining dragging. The Nebraska legislature passed a law to go into effect August 1, 1913. This is not unlike the patrol system. The substance of this law is as follows:

"The graded roads in each county are to be divided into road dragging districts by the county boards. One person in each township is to be appointed superintendent of dragging and is to receive not more than \$2.50 per day.

"Roads shall be dragged whenever necessary and all the sections of the highway shall be dragged at once. County boards may levy a tax of not to exceed one mill for road dragging. Where 4 horses are used on an 8-foot drag the rate of payment is 75 cents for each mile of highway dragged both ways. Where a 7-foot drag and two or three horses are used, 60 cents is the prescribed rate.

"On rocky highways or stretches of road that cannot be improved by dragging the county boards are not required to put the act into effect."



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Vol. 15 AUGUST, 1913 No. 2

Every downpour of rain the present season is an added argument in favor of stacking the grain.

The education of the Northwest should prepare the children to make the most of Northwestern industrial conditions.

The enormous quantity of rain that has fallen the past few weeks is a blessing in disguise, only conserve it for next year.

Hogs may be depended upon to lift the farm mortgage, but they will have to work overtime if too many chattels are forced upon them.

It is an easy matter to secure good speakers for the national legislature. "The woods are full of 'em." The thing is to get them to vote right.

No country ever did or ever will prosper for any great length of time where small grains are grown exclusively. North Dakota is no exception. On the other hand, it would be difficult to name a livestock community that has not prospered.

The reader who has children doing work at school in the seventh or eighth grade will find the North Dakota Farmer worth its price simply for the elaboration of the state course of study in Elementary Agriculture. Is not this educating toward the farm?

The government should establish a selling agency and make provision for the distribution of exact information as to where commodities are and where

they are needed. In this way, and by means of educational agencies adapted to the proper ends, the farmer will become a business man in fact as well as in name.

A trip over the state of North Dakota will convince one that the farmers are going into dairying more and more. Nearly every railway station has its load of creamery cans ready for shipment, and often the trains are delayed by the handling of large quantities of these cans.

Would there were a law to the effect that no dirt road in North Dakota should be constructed without the King drag, or other similar implement. At least 75% of the bad roads of this state are bad because they have been made so by shiftless or incompetent road builders. The farmer pays the cost in wear of vehicle and horse flesh.

Silos are not luxuries. A good silo is equal to many acres of pasture—and is always reliable. The area of corn necessary to fill the silo need not be large and the corn stubble is practically sure to produce a good crop of small grain the following year. It almost pays to raise the corn for the increased yield of wheat that follows.

Every farmer should stack some of his small grain—enough at least to enable him to keep his plows going should rain prevent threshing. Last year many farmers could neither thresh nor plow during a good portion of September because when it was too wet to thresh, the shocks of grain occupying the ground prevented plowing.

Ten years ago this paper urged the establishing of canning industries in this state. Last year a canning factory was established at Lisbon and this year one will be in operation at Casselton. There is still room and need for many more. The long summer days of North Dakota produce most succulent vegetables, and there is a constant demand. What town will be the next?

The governor of Missouri has won for himself fame by "good works," in his recent action in the matter of good roads. With every able-bodied man working two whole days in improving the roads, not only will that state save millions of dollars but the condition of the roads will be so much improved that many more millions will be saved to the traveling public. What state will be the first to follow Missouri's example?

Never in the history of the state did the fields of grain advertise so un-

mistakably the kind of management they received as this present year. Every sort of yield from nothing to a bumper crop may be found in the same locality. A thirty-five-bushel crop of wheat on one side of the road and a weed patch across the way are not uncommon spectacles. Why will farmers not learn that it doesn't pay to trifle with soil, seed, or cultivation? Rather why do they not realize the advantage of good farming?

If your children return home from school with a knowledge of tree grafting, if they can detect the noxious weeds and have a means of exterminating them, if they are able to test your seed grain, if they can explain why cultivation is essential to the conservation of moisture, if they can prove by the Babcock test the value or worthlessness of your dairy cows, just advise the school board to increase the teacher's pay. Such teaching will tend to keep the boy on the farm. Such a teacher is worth \$25 a month more than the city-bred "school-keeper" whose only thought is the end of the week for the frivolities and end of the month for her pay. Do you appreciate the real teacher?

Every farming community in the state should support some form of farmers' club or agricultural society. The Grange is the best form of farmers' organization, as it is permanent and includes in its membership the wife and grown children. Agriculture is too big for a one-man business. It is big enough to engage the best thought and earnest co-operation of the entire community. Whether buying or selling, farmers can reap great advantage by co-operation. The Grange or the club affords a good place to assemble and talk over matters concerning the social and business affairs the community is interested in.

Modern conditions have forced the

FARMERS' WIVES, ATTENTION! AUTO OWNERS, TOO!

There are premiums, and premiums, but very seldom is one given that is so welcome to the farmer's wife as the Callendar Foot Scraper. This scraper has brushes at each end and will mean clean floors wherever used. This premium we will give with every three-year subscription to the North Dakota Farmer, at the regular rate of \$1.00 and we will prepay the postage to your door. It sells everywhere for \$.50 and over.

Put 50 2-cent stamps in an envelope **today** and address it to

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Lisbon,

North Dakota

Livestock Department

FARM AND STOCK NOTES N. J. Shepard

A sow should never be market fat when bred.

Cream is ripened before churning to develop flavor and render churning easier.

Slow churning will get more fat out of the milk than rapid churning will.

More butter fat can be gotten out of the cream if the cream is well-ripened before churning.

It is not possible to get some cows to give rich milk. It is not in them to do it.

If the young colt gets stunted it will never attain the growth it should. It can be made fat but not large.

Pigs often lack vigor because the brood sows are kept too fat. A good thrifty condition is much better for the pigs than too much fat.

While the sow that is suckling a litter of pigs should be fed all that she can eat, no more food should be given at a time than she will readily eat up clean.

There are two things in the farm that are an exhaustless mine in a comparatively small way: the dairy

and poultry. Managed rightly they will always pay.

A horse is no better than his feet and it does not matter how fine the form of the animal or how correct the markings if poor feet go along with them.

No flockowner can achieve success in the breeding of sheep either for market or breeding purposes, if he resorts to constant crossing of two different breeds to improve his flock.

Cuttings of hard-wooded plants should be started to rooting in mid-summer, when the new growth begins to harden. Almost any hard-wooded plant can be propagated by slipping or cuttings with proper treatment.

Good cows well cared for, and their butter product well made and judiciously marketed and all the by-products used to the best advantage, comprise one of the most profitable branches of agriculture.

The butter-maker who puts her products on the market in such a condition as not to appear as good as it is, does herself an injustice. Make the butter first class and put it on the market in such a manner as to make it show for all it is worth.

Soundness is an essential feature in the make-up of a driving or riding horse when placed upon the market. A small blemish will not only lower the value of a horse but will very often prevent the sale entirely. Those who are able to pay fancy prices for horses want them free from defects of any kind.

Unpruned, uncultivated orchards are not money-makers.

Few things grow into money faster than thrifty pigs.

A large part of a horse's efficiency depends upon his feed.

The fast walking horse earns the most money for his owner.

Machinery should be used on the farm whenever and wherever practicable.

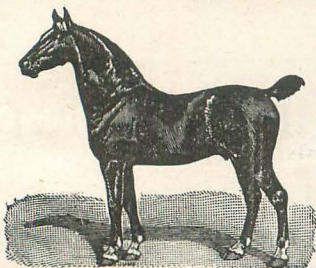
Barley is an excellent horse feed. It furnishes as much nutriment as the same weight of oats.

Immediate isolation of every diseased fowl will often stop the run of an infectious disease among the flock.

For a breeder it is not only necessary that the individual himself possess good qualities but his ancestors should have them.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam



Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeney, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is warranted to give satisfaction. Price \$1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

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WANTED. Live Foxes, Skunks, Mink and Badgers, any t me. Envilla Stock Farm, - Cogswell, N. D.

WANTED: A Newfoundland male pup. ALBERT JAQUA, Tokio, N. D.

AGENTS WANTED. Farmer's Directory, Account Book. Exclusive home territory. Easy seller. Big inducements. Particulars Free. Write Naylor 938 Ft. Wayne, Ind.

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If a horse has the experience of trying to start a load which he cannot budge, he is never as good a horse afterward.

The feeding plays quite as important a part in the success of raising hogs for market as the breeding and selection.

All dirt or filth taken into the stomach with the food retards and impairs digestion, reduces the gain and endangers the health.

Pigs for market should be kept growing constantly and the best results will come with feeding a little under their capacity rather than all that they can consume.

Cut off at any time any suckers you may find growing at the root of fruit trees, or on the trunk, or main limbs where branches should not grow.

See that cream does not get too ripe during hot weather. If too ripe it will be too sour and the quality of the butter will not be so good.

If you want your heifer to develop into a profitable cow you must extend her first milking period as long as possible in order to prolong and fix the milking habit.

Improvement of sheep in a systematic way by careful selection and proper handling will bring the flocks up to a higher standard in both wool and mutton production.

Good food never creates the character nor temperament of the cow, nor makes of her a good dairy animal any more than it will never make a good cow out of a small milker and there is no use wasting the effort.

If half the time that is spent in hunting for tools that were left where last used, in putting them to their places when done with them, the other half would be sufficient for the reading and studying of a good farm paper.

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We own and are offering for sale 2240 acres in Richland County, N. D. This has a fine set of buildings. It is near the main line of the Soo and also to the Fargo-Southwestern branch of the N. P. No finer proposition for raising livestock. Convenient to market; the finest kind of pasture, all fenced; more hay than you need; very good water and plenty of it; local and long distance telephone connection. It pays to raise livestock and this is a good place to raise it. Write us for particulars and terms.

NORTHERN TRADING CO.,
Cassellton, N. D.

Every day a hog is kept longer than is necessary to mature it for market is time and the money value of the extra feed lost. Quick maturing pigs mean quick money and are generally more profitable and satisfactory than the ones that must be kept a year or more.

THE CREAMERY NEEDS EFFICIENCY

G. L. Martin, Professor of Dairying, N. D. A. C.

The essential point in organizing a co-operative creamery is well set forth by G. M. Lambert, Federal Dairyman of Salt Lake City who says, "It is with the idea of receiving greater returns and more efficiency that the

majority of co-operative creameries are organized. No creamery can hope to be successful that does not have the thoro co-operation of its patrons in producing a good quality of cream to make good butter. It requires good markets to obtain good prices, and it requires good prices to encourage good dairying.

Dairying must be considered as one of the state's greatest resources, and as such it must be protected in the same manner and degree as are other state industries and enterprises.

SPECIAL BARGAIN ON TIRES OF STANDARD MAKES Without Factory Guarantee

30x3 1/2—\$12.50	34x3 1/2—\$13.50
32x3 1/2—13.50	34x4—18.80
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Terms: Cash with order or, C. O. D. if 10% accompanies order. Tires subject to inspection.

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Thoroughly Posted on Pedigress

Terms Reasonable LISBON, N. D. Write for dates

ST. PAUL UNION STOCKYARDS COMPANY, SOUTH ST. PAUL, MINN. Comparison of Receipts and Shipments of Livestock for July, 1913.

		Receipts					Total Cars
Railroads	Cattle	Calves	Hogs	Sheep	Horses		
C. R. I. & P.	120	116	1300	230			31
C. G. W.	454	552	3632	858	70		94
C. M. & St. P.	2414	652	12296	1761	142		322
M. & St. L. ..	1148	455	10332	562			223
C., St. P., M. & O.	2551	1068	16354	2217	15		400
C. B. & Q.	73	91	555	127			12
M. St. P. & S. S. M.	6039	2619	8768	1512	2		407
Gt. Nor.	6053	3271	19368	4203			619
Nor. Pac.	5044	1190	9296	1963	247		365
St. P. B. & T.							
Driven In.	417	137	1035	98	6		
Total.	24313	10151	82936	13531	482		2474
Increase '12-'13	2005		27541				473
Decrease.		2576		12854	115		
Jan. 1 to date	179617	73504	697083	155516	3012		18536
Increase, '12-'13	27604		62346				2641
Decrease.		5126		4841	575		
Average Wts.	841	193	261	82			

		Shipments					Total Cars
Railroads	Cattle	Calves	Hogs	Sheep	Horses		
C. R. I. & P.	2076	53					59
C. G. W.	2045	139		267			69
C. M. & St. P.	4924	150	9450	210	145		273
M. & St. L. ..	612	6		128			20
C., St. P., M. & O.	3765	740		2181	43		135
C. B. & Q.	1012	1	7557		197		119
M. St. P. & S. S. M.	710	36		1035			33
Gt. Nor.	960	78	10	16	7		33
Nor. Pac.	582	5	102	223	2		26
St. P. B. & T.							
Driven Out ...	512	174	61	64	2		
Total.	17198	1382	17180	4124	396		767
Increase '12-'13'	4464		4510				105
Decrease.		603		11390	158		
Jan. 1 to date	123570	17096	163597	103123	2546		6184
Increase '12-'13	32597	5257	14142	9464			1300
Decrease.					1006		

I believe the state of Montana has taken a great step forward in the way of protecting its dairymen—and it is the duty of every state to protect its people. Montana vested the author-

mated that in the event that one-fourth of the Germany crop of potato greens is dried for stock food 2,500,000 to 3,000,000 tons, worth \$50,000,000 to \$60,000, may be obtained.

The North Dakota Stallion Registration Law was revised by the last legislature so that after January 1, 1916 no scrub or mongrel stallions can be licensed. At present the number of licensed stallions is as follows: Pure breds, 1271; Grades, 534; Scrubs, 1110.

Pedigreed Stock

PEDIGREED POLAND CHINA
HOGS & SHORT HORN
CATTLE FOR SALE. NOW
BOOKING ORDERS FOR
SPRING PIGS OF THE

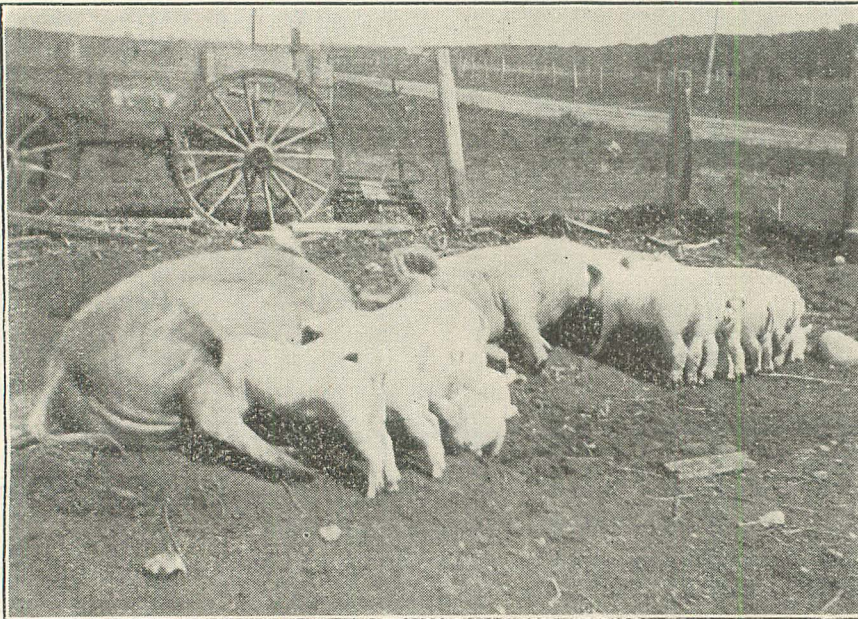
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Booking orders for Barred Plymouth Rock Eggs & Mammoth Bronze Turkeys

Stock for Sale at all times. Pedigree
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C. H. SCHUTT
R. R. 1, Fairmount, N. Dak.



JUST EVERY-DAY HOGS—BUT ARISTOCRATS
On the Farm of Julius Murray, Ransom County

ity in the State Dairy Commissioner to say when a new creamery shall be started in that state."

That is an excellent provision for many creamery organizations have failed because they lacked the knowledge of the essentials for co-operation—a sufficient number of cows, and co-operative spirit and efficient management.

According to a recent report of Vice Consul General Dawson at Frankfort, Germany, experiments have shown that dry potato greens have the same value for feeding stock as good meadow hay. The belief that potato greens are harmful to animals, is, according to the experimenters, a prejudice without foundation. Potato greens must be dried by a special process on account of thickness of stalks, and it is believed that apparatus used for drying beets, potatoes, grains, etc., can also be used for this purpose. It is esti-

SHROPSHIRE RAMS

I have forty-five thoroughbred Shropshire rams for sale. Coming two and three years old. Prices right. Call and see what I have to offer or write.

FORRESTER H. SMITH

Amenia - - North Dakota

ST. PAUL UNION STOCKYARDS COMPANY, SOUTH ST. PAUL, MINN. Comparison of the Origin and Disposition of Livestock for July, 1913.

Origin of Livestock Received						
States	Cattle	Calves	Hogs	Sheep	Horses	Total Cars
Minnesota	11791	7657	57770	8718	8	1522
Wisconsin.....	2478	1699	4666	2128	2	202
Iowa.....	670	.....	578	.....	15	41
Far South.....	24	.....	.....	.....	70	4
So. Dakota.....	1846	143	5138	439	62	159
No. Dakota....	7129	641	14518	951	24	510
Montana.....	293	3	266	1295	301	33
Far West.....	.....	.....	.....	.....	.....	.....
Manitoba & N.W.T.....	.....	.....	.....	.....	.....	.....
Far East.....	.....	.....	.....	.....	.....	.....
Returned	91	8	.....	.....	.....	3
Totals.....	24313	10151	82936	13531	482	2474
Disposition of Livestock						
S. St. Paul P'k'rs.	8807	9134	65466	9987	.....	.....
Cy. & State Butch	843	67	33	.....	.....	29
Outside Packers	174	725	16822	430	.....	193
Minnesota	4846	381	163	1697	11	163
Wisconsin.....	1883	14	.....	257	106	74
Iowa.....	4772	60	.....	539	.....	136
Nebraska.....	58	2	.....	.....	.....	2
Kans. & Mo. .	35	.....	.....	.....	.....	1
So. Dakota ..	863	67	.....	.....	.....	21
No. Dakota....	367	7	10	87	.....	12
Mont. & West	186	19	.....	.....	.....	5
Far South . .	.....	.....	.....	.....	.....	.....
Manitoba & N.W.T.....	.....	.....	.....	904	.....	4
Mich. & E. Can.....	.....	.....	.....	.....	1	1
Chicago	1383	6	152	210	54	59
Ills.(ex Chicago	1205	26	.....	.....	.....	40
Eastern Points	492	.....	.....	.....	224	24
Returned	91	8	.....	.....	.....	3
Totals.....	17198	1382	17180	4124	396	767



Poultry Department



SUPPLYING A POULTRY MEAT MARKET

By Michael K. Boyer

While I believe it is more profitable to sell eggs when the prices are high, than to turn them into broilers or roasters, and using the eggs for incubation only when there is a decline in price—I think that every thing should be governed by both the market and the facilities of the poultrymen. It has been proved that combinations pay better than a single branch.

Poultry meat farming has been made a profitable occupation since the invention of reliable incubators and brooders, but, of course, along with these machines must go good judgment and experience.

It is all important that we know the condition and the demand of the market we wish to supply. Some markets give better prices for broilers, and others excel in roasting fowls.

At the beginning of each year, in nearly all the large city markets, there is an increased demand for soft roasting fowls, weighing from four to six pounds each. At this time, too, there is a reasonably good demand for broilers. Beginning about the middle of January up to the first of May there is a call for squab broilers—chicks weighing eight ounces, dressed—for which as high as ninety cents a pair has been paid.

The New York Produce Review says the cause of considerable poultry arriving in bad order is the fault of the shipper, either by not having cooled out properly, putting too much in barrels without sufficient ice, or shipping dry-packed during warm or muggy weather.

Poultry that is to be tanked down in ice water before shipping should be well cooled out by putting in three changes of fresh well water before placing in ice water; this takes the animal heat out gradually, whereas, if placed in the ice water too quickly it drives the animal heat to the entrails, making a condensed and extreme temporary heat, which sours the contents of the crop and entrails, and which in reaction gives a strong and unsavory smell to the poultry, and almost invariably gives a greenish cast to that thin portion of the birds at the lower point of breast, which, of course, affects the selling price. This mistake of improper cooling occurs

more with winter and inexperienced shippers, than with those who ship the year round. However, it frequently occurs even with them that have used too much haste, or dressed too close up to shipping time.

Strong, sound barrels should be used in shipping, and the carcasses packed with ice. On the bottom of the barrel place a good layer of broken ice, then a layer of poultry, beginning in the middle, and packing in a circle, with heads down, backs up, and feet towards the center. Then alternate layers of ice and poultry, until the barrel is filled to within six inches of the top, taking care to have ice between the poultry and the sides of the barrel. Top off with large pieces of ice, and cover the barrel with burlap, which will insure its being kept right side up. Mark your name and address on the barrel along with that of the party you are shipping to, and at the same time send an invoice by mail, so that there may be no mistake or misunderstanding. It is always advisable to write ahead of a shipment so that in case of a stocked market the commission man can notify you to delay the shipment a few days.

Those who ship live poultry to market must use strong, well-ventilated coops, of sufficient size to avoid overcrowding, or some of the birds may be crushed to death while enroute. The stock should be well fed and watered before shipping, and an extra allowance of feed placed in the coop. The shipments should be timed so that they will reach destination not later than Friday; and never ship at the end or latter part of the week, except by special order, as the stock should not be allowed to remain in the coops longer than is actually necessary. As there is a certain amount of shrinkage in all shipments of live poultry, exact returns for the full weight at time of shipment must not be expected.

The number of pounds of food elements we buy in a ton of linseed meal are 564.4 muscle makers; 65.8 fat

forming; 142. pure fat. In a like quantity of bran we have 223.4 muscle makers; 1,085 fat forming; and 70.4 pure fat.

It is when the duck is not laying that she really takes on fat.

Cold storage men claim that brown-shelled eggs, being heavier and thicker, preserve better than white-shelled ones.

Soft-shelled eggs can be caused by one of four conditions: lack of sufficient lime in the food; indigestion; overfat; fright.

The French feed considerable buckwheat to their turkeys, believing that this grain imparts to the flesh a delicious, nutty flavor much-liked by their epicures.

Corn, barley and buckwheat are very fattening grains, the latter having a tendency to whiten the flesh. Sweet potatoes are sugary, and as such

CHICKEN THIEVES

Steal millions of dollars from Farmers and Poultrymen, and how to get rid of them is a problem many cannot solve. It is very easy to do if you use Licecil, Metzger's latest discovery, a new and modern method of doing away with these thieves. To quickly exterminate them and make more money with poultry use Licecil, the strongest lice killing compound made. Works like magic. Simply put a few drops in nests and hang balance of uncorked bottle high in coop directly over roost. No painting, no spraying, no dusting. Lice, mites, chiggers, bed bugs, roaches, ants, etc., have no lungs; they breathe thru the pores of their body and cannot live in these powerful evaporating vapors, which are three times heavier than air and descend in a misty form penetrating feathers, cracks and crevices everywhere, instantly destroying insect life. Licecil vapors will not injure chicks. Cheapest to buy, easiest to use. Price \$1.00 for season's supply. Money back if it fails. Your dealer will supply you, if he refuses send \$1.15 for package express prepaid.

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QUALITY—UTILITY—EXHIBITION

Single Comb Rhode Island Reds, Barred Plymouth Rocks, White Plymouth Rocks, Light Brahmas, Buff Wyandottes.

BIRDS OF HIGHEST QUALITY: Winners in the following shows 1913: Minneapolis and St. Paul, Minn., Fargo & Valley City, N. D. Mating list free. WOLVERTON, ROUTE 1, MINN.

are fattening, but give a yellow tinge to the flesh.

Scientists tell us that a ton of wheat contains 41 pounds of nitrogen; barley, 32 pounds; oats, 38 pounds; corn, 32 pounds; peas, 70 pounds; beans, 81 pounds; hay, 31 pounds; clover, 39 pounds; milk, 10 pounds; potatoes, 6 pounds.

Capons, generally, are dressed by leaving feathers on the neck from the head down two-thirds to the shoulders. They are also left on two first joints of wings, on tail, half way up the back, and on legs from knee-joint two-thirds up the hips. All the rest of the feathers are taken off.

Boston market prefers the head of the fowl taken off at the throat. Strip the blood out of the neck; peel back the skin a little; remove a portion of the neck bone; and then, just before packing, except in warm weather, draw the skin over the end and tie and trim neatly.

In cases where cock birds have lost their voice, which can be noticed when they attempt to crow, a teaspoonful of glycerine on which has been sprinkled a little chloride of potash, given daily, will be found effective. For more obstinate cases follow with a half teaspoonful of cod liver oil, once a day.

The French method of preparing poultry for market is acknowledged, in some respects, superior to others. The birds are made very fat and plump, and are manipulated to increase plumpness. A few feathers are left on tail and neck. The skin is white and delicate. Each carcass is tied with a ribbon, and is shown back uppermost, instead of breast up, according to American and English usage.

When a hen is discovered with closed eyes and a very hot head, no more effective treatment could be given than taking a cupful of hot water, in which is dissolved a tablespoonful of salt, and applying it to the head as hot as it can be borne. This will reduce the swelling and allay the fever. This treatment should be followed by giving a one-grain quinine pill each night for three nights, during which time the hen should be kept in a comfortable enclosure alone, and fed on soft nourishing food.

No success can be obtained with poultry unless the fowls are kept comfortable. A fowl drenched with rain is not comfortable. A man caught in

a rainstorm can change his clothing and thus save catching a cold, but a fowl must allow her clothing to dry on her. No fowl can stand a constant exposure to inclement weather, and the more we protect them the better will be the results.

Some poultrymen in the South use rosin in dressing poultry, claiming that by its use they can do the work more quickly and thoroly. The fowl is first dipped in cold water, then with a perforated can powdered rosin is sprinkled all over the feathers. The fowl is then scalded in the usual manner, and the whole coat—pin feathers and all—it is said, comes off very easily in the mass, and the job is complete. It does not in the least affect the appearance of the skin.

The grade of eggs demanded for the British trade is one that will weigh one and one-half pounds to the dozen, and for every half pound of eggs that weigh less than fifteen ounces to the dozen, the value is lessened by about one cent per dozen. Those engaged in the import trade believe that in large eggs the albumen is thicker than in small eggs with whiteshells. Shells of a brown color are preferable, and must be clean without having been cleaned.

The late M. Barral, of France, laid down the rule that in every case the food given should be in proportion to the weight of the birds, taking into consideration their active nature and such accessory products as eggs and feathers. Generally speaking, an average hen will consume three ounces of grain per day, or over a bushel in the course of a year, but the weight of gallinaceous birds varies considerably, and hence no really definite idea can be formed of what they are capable of consuming to the best advantage.

KINDNESS TO FOWLS

Did you ever stop to consider that kindness pays just as well in the barnyard as in the home. Laying fowls, like bees, sting when disturbed by quick motions or otherwise, the only difference being that the sting is in the pocketbook. Fowls to produce well must be kept tame. At feeding time, when the birds are hungry, and you have from one to five minutes time that can be spared, sit or kneel down at the usual feeding place with the bucket of feed, and throw out a little of the feed near you, gradually shortening the distance from day to day. In this way the birds may be made to approach rather close, and after a few trials they will usually eat from one's hand.

POULTRY ON THE FARM

We believe that every farmer should have a flock of paying poultry. To encourage our readers to read reliable literature on this subject, we offer for a short time two six-month's subscription: one to the "American Poultryman" and one to the North Dakota Farmer, for the names of ten farmers and a dime or five two-cent stamps. Why not do it now?

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Box 17 - Hammonton, New Jersey

School and Home

ELEMENTARY AGRICULTURE EIGHTH YEAR, FIRST MONTH

For Seventh year See Page 3 and Page 7.

THE SOIL

By Thos. I. Mairs, in The Rural Educator

According to a study of agricultural instruction in public schools made in 1910, the majority of high school teachers who are teaching agriculture find "soils" the most difficult part of the subject to present. This may be due to one or more of several reasons: First, "soils" is being taught in more schools than any other topic; second, teachers do not understand the subject well enough themselves; third, the work as presented in these schools may be too advanced for high school pupils; fourth, the particular phases of the topic presented have not been carefully selected; fifth, the method of presentation has been at fault.

It is believed that some suggestions would materially aid the inexperienced teacher and to this end the following outline is presented. It is intended to furnish a very brief yet comprehensive view of the chief relationships of the soil rather than to present a sequence for study. Some of the headings are mentioned merely for the sake of making the outline logical and complete and any part may be expanded if desired.

A knowledge of the make-up of the soil is valuable in agriculture only so far as it has a bearing on its function and upon the treatment best designed to increase economic crop production. It is desirable that the pupil see the soil as a whole, and as an active agent in the growth of plants. He should not think of it as a dead inert mass of waste material nor should he think of any component or any phase as being complete and independent of all others.

Outline for Study of the Soil

- A. Definition and Functions.
- B. Origin and Classification.
- C. Composition, Texture, and Structure.
 - I. Physical Composition.
 1. Rock particles:
 - (a) Stones.
 - (b) Gravel.
 - (c) Sand.

- (d) Silt.
 - (e) Clay.
 2. Organic matter:
 - (a) Structural.
 - (b) Humus.
 3. Water:
 - (a) Standing (hydrostatic).
 - (b) Film (capillary).
 - (c) Insensible (hygroscopic).
 4. Air (gases):
 - (a) Free.
 - (b) In solution.
 5. Living organisms:
 - (a) Bacteria.
 - (b) Fungi.
 - (c) Animal forms.
 6. Plant food (soluble).
 7. Plant poisons (toxic compounds)?
- II. Chemical Composition.
 - D. Treatment.
 - I. Tillage.
 - II. Drainage.
 - III. Irrigation.
 - IV. Fertilization.
 1. Commercial fertilizers.
 2. Barnyard manure.
 3. Green manure.
 4. Lime.

It is understood that no topic or sub-head in this outline should be studied to the exclusion of all others. The bearing of one on another is so close that this is impossible. For example, the composition and texture of soils depend largely upon their origin, while the classification is based upon the composition and texture as well as upon their origin. The physical composition and the chemical composition are somewhat interdependent.

All the constituents of the soil act and react upon each other. Each constituent is affected more or less by every other constituent. While rock particles and organic matter are not plant food, both are capable of yielding plant food upon decomposing thru the action of the air, water, and living organisms in the soil. In like manner, drainage and irrigation considered under "treatment" have to do with the water in the soil, one of its physical components. The free air in the soil is dependent upon the standing water, since, as the water goes downward the air follows it and as the water rises it forces the air out. Fertilization is closely related to the size and composition of the rock particles, kind and amount of organic matter and the supply of plant food.

The teacher should put this outline

or a similar one on the blackboard and have the pupils copy it in their note books. This will help to fix relationships in their minds. One difficulty often is that pupils do not carry a distinct view of the subject in their minds and this results in confusion of ideas. It is thought that such an outline will be conducive to clearer thinking. Unless it does, it is hardly worth while. The outline has no particular value within itself.

"FRIENDS IN THE SOIL"

T. D. Beckwith

It has been stated by a New England scientist that the soil is a great work shop and in the light of modern research and experiments this seems undoubtedly true.

Germ Crops in the Soil

"It sounds too incredible to believe but in an ounce of Fargo soil taken near the Agricultural College buildings there were found to be about three hundred millions of bacteria or "germs" as they are commonly called. To count such a large number would be quite impossible but there are scientific ways of estimating such results and 300,000,000 per ounce seems to be approximately correct. This sample was taken two inches below the surface; or in other words, just under the sod.

Each germ is a single living organism having its own place in life and doing its own work. This work has a direct bearing on the nature of the soil and it has been found that the different methods of tilling the soil influence directly the life of these bacteria or germs either helping or hindering their growth as the case may be. A little reflection will show how necessary it is to till properly the land in order to cause these soil germs to multiply and work for the greatest advantage to the farmer.

"Since bacteria are present in the soil in such numerous quantities, let us consider them in their various and more definite relationships to the farmer.

What Food Crops Must Have

"Plants that we raise in the shape of all kinds of crops must have food. This food must be gotten either from soil or from air. Among the most important of these plant foods are potash, lime, phosphoric acid and nitrogen and if we want to raise the best crop we must have the quantity of each of these necessary constituents in right proportions and amount. Potash, lime, and phosphoric acids

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may all be replaced with comparative cheapness, but nitrogen is much more expensive. Nitrogen fertilizers are becoming more and more difficult to procure as the visible supply becomes less. Nitrogen is found in sufficient quantity as yet in North Dakota but at the present rate and by following out the present methods of farming it is only a question of time until it will become necessary for our farmers to add nitrogen to the soil. Already the first signs of this need are apparent in the changes that are seen taking place in Dakota farming. We are becoming more and more diversified as the wheat raising possibilities of the country are becoming lessened.

Nitrogen as Fertilizer

"Nitrogen then, is the great plant food. But common air, the air that we breathe constantly, is four-fifths nitrogen. Since it occurs in such large quantities all round us and circulates as part of air thru the soil, how is it that it is not used by the plants? It seems strange that the food most needed by crops should be useless for their growth even when it is present in such large quantities so constantly. Yet such is the case. It has been discovered that nitrogen which occurs as it does in air in the form of gas, is quite unavailable as plant food. It must be changed over into another chemical form so that it exists not as a gas-nitrogen, but as certain chemical compounds known as nitrates and certain other combinations of similar nature. Nitrogen usable as plant food is constantly being extracted by the crops and must be replaced.

Bacteria Make Nitrogen Fertilizer

"The method nature has created to replace the nitrogen in soil—to build it up so that it shall continue rich in plant food, is found centered in certain ones of these millions of germs that are found in every ounce of the upper crust of dirt. It has been discovered that certain kinds of these countless bacteria have the power of taking nitrogen from air and other

sources and changing it over—building it up chemically so that it shall be in a condition for plants to use for food in order that they may grow better. These bacteria then, are Nature's means put at our disposal in order that we may keep the nitrogen in the soil up to the necessary standard of amount and usefulness. These germs are very delicate, many of them, and are sensitive to the various methods of tillage used. If the farmer treats his land rightly tilling it properly, rotating his crops to the best advantage, unconsciously he is fostering these helpful bacteria and thus obtains better returns from his crops.

Where Germs are Found in Soil

"Let us consider these germs for a short time as to their position. It is known that about two-thirds of the total number of bacteria present in soil are found in the upper foot and of the remaining one-third, by far the greatest part are found in the next foot. In other words below two feet in depth comparatively few soil bacteria are found. The reasons for this position are obvious. These soil germs require oxygen to live just as higher forms do. The greatest amount of oxygen as the air circulates thru the soil, is found in the upper portions and in those parts therefore is the greatest growth of bacteria. The various methods of treating the soil affect the upper six or ten inches and thus have greater influence on the bacteria.

Germs in the Manure Pile

These bacteria need air and some moisture. Too much moisture retards them. Therefore, constantly tilling and turning over the surface ground is vitally important to their best growth. Also in this connection the underdrainage must be considered, for by such means the farmer does away with excess of water and thus gives the soil bacteria better growing conditions. Right here let us consider the manure question. Remember it has been stated that air and the right quantity of moisture must be obtained in order to have soil bacteria thrive. Let us apply that reasoning here. While the manure is on the pile, you do not want it to decompose and change. If you leave it loose and dry you know how that sharp odor of ammonia is given off. That is just so much plant food being given off into the air and lost. That loss is caused by the bacteria working. But the farmer should stop their action at that time. The lesson to draw is this. Compact the manure—pack it down, let hogs run on it and in addition occasionally wet it down thoroly. This will tend to stop the bacteria action until it is spread. The proper treatment of manure in order to get the

most out of it is also a very important consideration from the standpoint of soil germs. Incidentally let me say that the best results will be obtained by throwing the manure as fresh as may be on the land, for then the least possible loss shall have taken place.

How Moisture and Air Help Soil Bacteria

"Soil bacteria need air and moisture. By giving them lots of air and the correct amount of moisture in the fields due to proper cultivation the farmer helps them, at the time when their aid is most needed. In the manure pile by giving them little air by composting the pile and too much moisture by wetting it down occasionally, their growth is hindered at the proper time when it is not desired and thus the manure is saved at its highest efficiency until it is needed.

The Soil Must be Neither Sour Nor Too Alkali

The reaction of the soil must be considered for these germs are delicate. They cannot endure much acid nor much alkali. If you land is sour they cannot thrive. The same is true if it is alkali either wholly or in spots. The remedy for sourness is lime which naturalizes the acid in the soil. Therefore use lime if it needs it. If it is alkali manure and leeching will help, for manure makes humus which neutralizes alkali and by leeching the excess of alkali is dissolved out and is carried away by the water. If the farmer suspects that his soil is acid or sour let him buy a cent's worth of blue litmus paper at the druggists, take a knife and make a little slit in the earth, stick the paper in that slit and then pack the soil around it lightly. After five or ten minutes take the paper out and if the soil is acid the paper will have red spots on it. This is a convenient, simple, and fairly sure method of testing acidity in soil.

We might speak of numberless other factors with regard to the bacteria of the soil which concern farmers, but the time and space are too short. Enough has been said to give some idea of the importance of the soil bacteria in their relationship toward fertility of the land. The subject is comparatively new and many phases of it are not understood at all, but we do know that the cultivation of the soil has very much to do with the vigor and growth of its bacterial flora.

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Proper tillage, underdrainage, temperature, mulching, liming, are all important. We know that they all help the land but if we look further we perceive that to a great degree, they help the land because they stimulate the bacteria of the soil to greater and more vigorous growth and this in turn acts to keep soil-fertility up to the proper standard.

SOIL SURVEY IN BARNES AND LAMOURE COUNTIES

Herbert A. Hard, Agri. Col. N. D.

A slight omission occurred in the May number in that it was not stated that the State Soil and Geological Survey, and Barnes Co. had financed and operated half of the big work of the survey of that county while in co-operation with the Federal Survey. The latter was given credit for all the work.

The State Soil and Geological Survey of the Agricultural College conducted by Professor Hard and staff, and the Soil Bureau, has completed the testing and analysis of the soils, and a study of road material resources, water supply, and other geological matters in Barnes Co. The State forces, horses, and outfits have now been moved to La Moure County where for two years the work will be pursued.

The soils of Barnes, long noted for their practical fertility, have also stood up well under the exacting tests of the soil experts, and give every indication of being able to show the lasting qualities of other fertile soils. They will meet the demands of permanent agriculture as well as any soil, if only they have judicious rotation of crops along with application of manure, seasonable plowing and cultivation, and are planted with disease free or immune seeds of acclimated varieties. Limited tracts of alkaline land were tested and mapped, most of which are able to be cured by manure treatment if the farmer is so inclined. Practical farmers at Oriska, Fingal and Wimbleton are setting this out under the direction of the agricultural College survey with perfect results, the account of which can be had by dropping a card to any one of these men or to the director of the Agricultural College survey.

The report should have been in the hands of the farmer before now but for the usual dilatory habits of state and federal printers. However it will be out shortly and will be of especial value to farmers and those wanting to buy land. It may be had free by addressing Professor Hard of the Agricultural College or the federal Soil Bureau.

The soil map of the county will be three feet square and will show in colors the

soil type on every quarter section in the whole county. The report accompanying it will recommend some crops adaptable to the different soils, and that system of rotation and soil treatment likely to yield better results. It is realized that each man knows a vast amount about his own soil which he may have farmed for years, but the soil expert has many other valuable facts and suggestions to give which will greatly increase the profits to the farmer if he meets him with open mind to consider them.

No system of soil survey or analysis would be complete, or of more than temporary value if the farmer did not have access to helps from the soil man each year as the seasons advance. To meet this need the director of the Survey at Agricultural College maintains a consulting correspondence free to all farmers, and, with this staff is prepared to make trips to the field to consult and advise the farmer.

Owing to the progressive spirit actuating the citizens of LaMoure County, the survey has now been secured and is in active operation in that county. Work was begun simultaneously around La Moure and Marion. The fine loams and silt loams of these localities are, under the fine effect of the heavy and seasonable rains, bidding fair to lead the state in the season's yields. A soil and a geological map of eastern LaMoure County will be available in 18 months, and for the whole county in about two years.

A list of the different counties which have been surveyed, along with the other reports of the Soil Survey is now just ready for free distribution on application

to the Director of the Agricultural College Survey.

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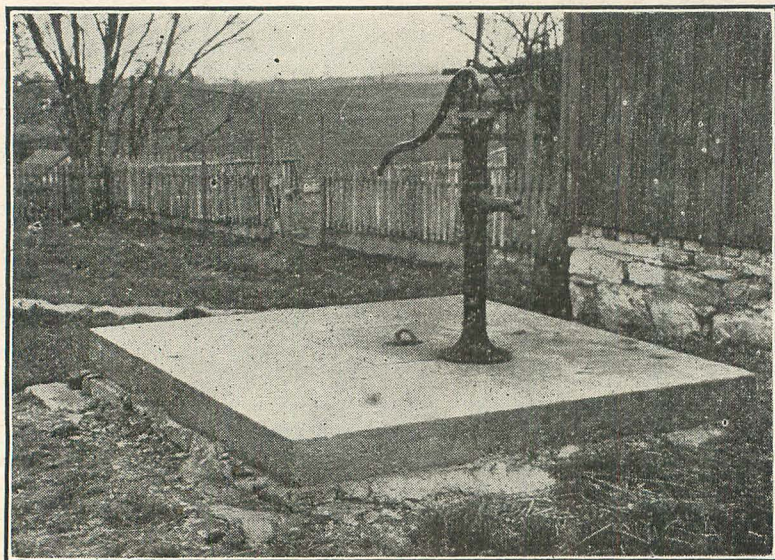
PROTECTING DRINKING WATER Concrete Well Platforms are Conducive to Health

Even with an abundance of fresh air and wholesome food, the health of a country family is largely dependent on the purity of its drinking water. Since the principal source of farm water supply is the bored or dug well, the purity of the water is determined almost entirely by the ability of the well curbing and cover to keep out contaminating surface water. If the well is curbed near the top with

of solid concrete (proportioned 1:2:4), or of blocks or bricks laid up with cement mortar mixed in the proportion of 1 part cement to one and one-half parts sand. Carry the curbing 6 to 8 inches above natural ground level and grade the turf to this height so that surface water will flow away from the well. Prepare to mold the cover on a wooden platform of two-inch boards laid over the well or placed on a level spot of ground. For most wells, a platform 5 feet square by 4 inches thick is sufficiently strong. To provide for a manhole opening,

sand and 4 cubic feet of crushed rock, or 1 bag of cement to 4 cubic feet of pit gravel. Have the concrete just wet enough to flush a little cement mortar when tamped into place. Over the entire wooden platform, except within the manhole frame, spread 1 inch of concrete. For reinforcing, immediately place on this concrete 5-foot lengths of three-eighths inch iron rods running in both directions (criss-cross) and spaced 9 inches apart. Bend the ends to a hook-shape. Strengthen the platform around the manhole opening by placing an additional rod on each side. Bring the cover to its full thickness at once by tamping in the remaining four inches of concrete. There will be needed 3 bags of cement, one-fifth cubic yard of sand, two-fifths cubic yard of rock and 6 pieces of three-eighths-inch by 10-foot rods weighing 23 pounds.

For fixing the base of an iron pump securely to the finished well platform, place in the soft concrete around the pump opening ordinary bolts (washed and heads down) to the depth of 4 inches. To locate these bolts correctly, set them by means of a wooden block or templet in which holes have been bored and spaced exactly like those in the pump base. Lag bolts or similar devices may also be used for this purpose. Finish the surface of the platform with a wooden float and steel trowel the same as for sidewalks. If the greased tin form is used, the manhole cover may be cast at the same time as the rest of the floor. Reinforce the lid with short lengths of iron rods laid criss-cross. As a lifting ring use half of an old bridle bit, or a hitching-post ring, the end of which is provided with a knob of twisted wire or with a nut and a large washer. If the wooden manhole form is used,



Sanitary Well Platform of Concrete

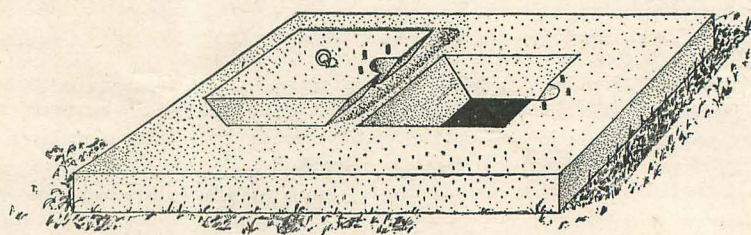
solid concrete (or with blocks or bricks laid in Portland-cement mortar) and is covered with a concrete platform, the healthfulness of the water is practically assured.

How to Make the Reinforced Platform

There are several methods of building a concrete well platform. The choice is dependent on the manner in which the pump barrel and stock are joined together. In the illustration is shown a platform 5 inches thick and 5 feet square, which contains a manhole fitted with a concrete lid. The pump stock passed thru the platform by means of a circular hole at the side and a part of the manhole opening. By this means the pump stock and barrel can be joined together and slipped into position by a person working thru the manhole. Afterwards the concrete manhole lid is set in place. Moreover this lid is heavy enough that it cannot be removed by a child.

In preparing the well for a concrete platform, see that 4 to 5 feet of the curbing near the top of the well is

build a bottomless box, of 1 by 6-inch boards, 5 inches deep, 2 feet square at the top and 18 inches square at the bottom—outside measurements. Another plan is to have a tinsmith make a round bottomless tin form 5 inches deep, 2 feet in diameter at the



Concrete Well Platform with Manhole Removed

top and 18 inches at the bottom, after the pattern of a large bottomless dish-pan. To either manhole form attach a wooden block of the size and shape of the pump barrel or stock. Grease the manhole frame and set it on the wooden platform where the opening in the well cover is desired.

Proportion the concrete 1 bag of Portland cement to 2 cubic feet of

carefully remove it after four hours. One day later build the manhole lid the same as for the tin form with this exception—place greased paper or card-board around the edges of the opening to prevent the new concrete from sticking to that of the platform. To make the manhole lid lighter in weight, before placing the concrete, spread one and one-half inches of wet

sand over the wooden platform inside the manhole opening and then tamp in the concrete. Take care to place the reinforcing within one inch of the bottom of the manhole lid.

After the well platform is two weeks old, carefully remove the wooden boards on which it was built and set or lower it into place. Give the platform a slope of one-half inch in the desired direction by placing a layer of cement-sand mortar between the well curbing and the platform.

Other Plans of Making The Platform

Some persons prefer to make concrete well platforms in two pieces with the division line thru the center of the pump opening. By this means the pump barrel and stock are easily joined and inspection is readily provided for. In other cases where the pump and stock can be joined together and lowered into the well as one piece, the concrete platform (removable) is made as a unit and with a single opening merely large enough to receive the pump stock.

Concrete well platforms built according to these methods can be depended on to protect the well from mice, vermin and scrub-water. In pure water there is health.

Conference on Farm Problems

At a conference held at the Department of Agriculture the work of the "rural organization service" was discussed, and the board problems with which the new bureau will contend, such as matters of better marketing, social welfare and the improvement of the farmer's financial, physical and social life, were taken up and their treatment by the bureau tentatively outlined. Dr. Thomas N. Carver, who will be the head of the bureau, spoke at length on the broad problems which he will attempt to solve. He declared himself in favor of the "extensive" as against the "pent-up" system of farming. The former, he said, had been the Anglo-Saxon system, while the latter was the Chinese method, altho practiced also in Belgium and Holland, where a large population sustained itself on a comparatively small area.

Among those present, besides Secretary Houston, were Assistant Secretary Gallo-way, Senator Hoke Smith, Representatives Lewis of Maryland, Rubey of Missouri and Ketner of California, Dr. Wallace Butterick of New York, representative of the general education board, which is to work in co-operation with the Department of Agriculture in aiding the new movement; G. Harold Powell of California, and a number of the department's specialists in marketing problems.

Value of Mulched Strawberries

The Office of Experiment Stations of the Department of Agriculture recently received a report from the Maryland Station of some experiments in mulching strawberries with straw during the seasons 1908 to 1911 inclusive. As indicated by the yields for the 4 years a plat not mulched but cultivated in the spring has yielded an average of 3,612 quarts per acre; a plat mulched in early winter and cultivated in the spring averaged 4,101 quarts per acre; a plat mulched during the winter but not cultivated in the spring averaged 4,275 quarts per acre; and the check plat, which was neither mulched nor cultivated, averaged, 3,800 quarts per acre. In addition to the increased yield, the berries from the mulched plats were always brighter, cleaner, and much larger than those from the unmulched.

BREAD—SALADS—CANDY

The subject of the May, 1913, Extension is Bread, Salads, and Candy Making. The article on bread-making is by Miss Katherine Jensen, Instructor in Home Economics, North Dakota Agricultural College. Miss Jensen, while at the University of Illinois, carried on an investigation in bread making. In this article are given many of the results she worked

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out as to the following factors: size and shape of loaf, color of flour, liquid, yeast, salt, sugar, kneading and rising. A score card is also given.

The article on salad making is by Miss Minna Stoner, Professor of Home Economics North Dakota Agricultural College. The subject is treated under the following heads: crispness in salad vegetables, olive oil, marinade dressing, salad dressing, spiced vinegar, mayonnaise, substitute for mayon-

naise, sweet dressing, fruit juice, fruit syrup dressing, garnishes, meat, vegetables and fruit salads.

The article on candy making is by Grace Linder, Scholarship student. The making of fondant is first given, how to cut and dip are shown. The discussion includes the making of marshmallows. A copy of this bulletin can be had by writing to the North Dakota Agricultural College, Extension Department.

Cheap Sponge Cake

Two eggs, one cup sugar, one tablespoon lemon juice, five tablespoons cold water, one and one-third cup pastry flour, two teaspoons baking powder.

Beat the yolks well; add the sugar gradually, then the lemon juice and water. Beat the whites stiff and dry. Sift the flour and baking-powder and add to the yolk mixture; then fold in the beaten whites. Bake in muffin pans in a moderate oven.

FOR THE CHILDREN'S LUNCH BASKET

Beef Loaf

Three pounds beef chopped fine, one-half pound salt pork chopped, one tablespoon salt, one teaspoon pepper, ten tablespoons rolled cracker crumbs, three tablespoons sweet milk, 2 eggs. Mix thoroly. Pour one-half pint boiling water over it. Form into loaf and bake two hours.

Ham Sandwich Dressing

One teaspoonful sugar, one tea-

Seasonable Receipts

JELLY MAKING

If possible make your jelly on a clear, sunshiny day.

It is better to make it the same day as you extract the juice as the less time there is between the cooking of the fruit and the making of the jelly the better.

New canton flannel makes an excellent straining bag, as the nap catches small particles that might make the jelly cloudy.

No matter how much jelly you wish to make never have the juice more than an inch deep in your boiling kettle if you wish the clearest, firmest jelly. This will mean usually from three to five cups, according to the size of the kettle. By keeping two kettles going you can make your jelly more quickly this way than by trying to boil larger quantities as the large quantities must boil so much longer and this long boiling affects both the firmness and the flavor of the jelly.

A silver spoon in the glass will prevent the cracking of the glass when pouring in the hot jelly, unless your glasses are very cold or there is a strong draught on them.

To test jelly, dip a silver spoon or a straw in the boiling liquid and if the drop clings and seems to harden while hanging to the end of the spoon or straw it is done. Another method is to let a drop fall into a cup of cold water. If it goes to the bottom in one mass the jelly is done; if it spreads over the bottom of the cup it needs a little more boiling.

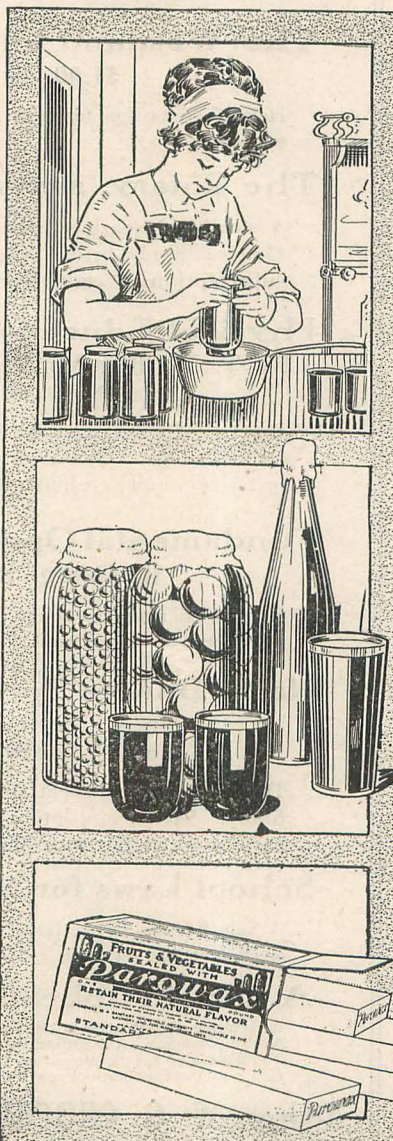
Choke Cherry and Apple

Equal quantities of choke cherry and green crab apple juice make very pleasant flavored jelly.

Grape Jelly

Cook the grapes with a small amount of water until all juice is boiled out. Drain and boil the juice just 10 minutes after it commences to boil. Add an equal amount of

sugar, previously measured. Let boil 10 minutes longer and test. It may need a few minutes longer. One teaspoon of good vinegar to the pint of juice added during the first 10 minutes will prevent the formation of crystals so often found in grape jelly.



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spoonful sugar, one teaspoonful mustard, two tablespoonfuls cream or butter, one-half cupful vinegar, a little salt. Add last the yolks of two eggs. Cook till thick in double boiler.

Soft Ginger Cake

One-half cup sugar, one cup molasses, one-half cup butter, one cup boiling water, one teaspoon soda, one and one-half cup flour, two eggs put in last, one teaspoonful each cinnamon and ginger. This makes a very thin batter and is best baked in gem tins.

Dutch Coffee Cake

One pint of bread sponge, one egg, one-half cupful of sugar, one tablespoonful of lard; let rise. Roll one-half inch thick and let rise again, just before baking beat the white of one egg and spread over top, also sprinkle top with sugar and cinnamon.

Nut Bread

Two eggs, one cup brown sugar, two and one-half cups sour milk, two level teaspoons soda, two level teaspoons baking powder, two cups white flour, two cups graham flour, one cup chopped walnuts, salt. Makes rather thin dough. Turn into one large or two small bread pans; let stand fifteen or twenty minutes, and bake in moderate oven forty-five minutes or a little more. This is a very nutritious, healthful bread and is more moist than the sweet milk receipts.

Fried Turnips

Peel the turnips, cut in inch cubes, boil until tender. Drain and fry in butter until golden brown on both sides.

Creamed Cabbage

Slice as for cold slaw and stew in covered dish until tender, drain and add one cupful cream, a generous lump of butter, salt and pepper to taste. Simmer two or three minutes and serve.

Oatmeal Bread

One cup buttermilk, two tablespoons melted butter, one-fourth cup sugar, one teaspoonful soda dissolved in milk, two cups flaked oats, one cup flour. Make a nutritious bread and is very good substitute for nut bread.

Wash-Day Pudding

To one large one-half cup rice, add one quart water, one small one-half cup sugar, butter size of a walnut, one and one-half cup raisins and one and one-half cup currants. Season with one-half teaspoonful mace and cinnamon each. Bake in slow oven from one and one-half to two hours. To be served with cream or any simple sauce.

Caramel Cornstarch

Caramelize one-half cup sugar by stirring in spices till it is melted, then

add to one pint scalding milk. Thickened with three level tablespoons cornstarch rubbed smooth in milk. Add one-third cup sugar and one teaspoonful vanilla. Cool and serve with cream.

Devils Food

Yolks of two eggs, two squares chocolate grated, one cup milk, one cup sugar, three tablespoonfuls melted butter, one and one-half cupfuls flour, one teaspoonful each of soda and cream of tartar and one of vanilla. Cook chocolate with one-half of the milk and the beaten yolks of the eggs until it thickens. Let cool. Rub sugar and butter together, then add the other ingredients. Bake in three layers or a loaf.

Sour Cream Pie

One cup of brown sugar, one egg, one tablespoonful of cornstarch or flour, one cup of thick sour cream, one-half teaspoonful each of cinnamon, cloves and allspice. Bake with one crust.

Apple Pie

Fill a rich pie crust with grated apples, seasoned to taste. Bake, and when cool place whipped cream on top.

Rhubarb Pie

Cut up the rhubarb as for sauce, scald it and pour off the water, add sugar to taste, and boil it until it is soft. Then set it aside to partially cool; then add for each pie one small tablespoonful of flour. Stir in smoothly and fill your plates, having first lined them with good crust and baked them. Return to the oven and bake until the flour thickens. Cool and spread with whipped cream.

Never Failing Pie Crust

One scant teacupful flour, four scant tablespoonfuls lard, four tablespoonfuls water, pinch of salt. Rub the flour and lard together very quickly with the hands; add the water, mix quickly. Roll thin. This makes just two crusts.

French Honey

Put in bright basin two cups of white sugar, one-half cup of water, three eggs, and a piece of butter the size of a small egg. Stir the mixture smoothly together. Cook in a double boiler until clear. If flavoring is used it must be very sparingly. When cold it will be a very nice imitation of strained honey.

Rhubarb Marmalade

Seven pounds rhubarb, peel and cut, six pounds sugar, four pounds figs. Juice and grated rind of four lemons, put sugar over rhubarb and let stand over night. Next morning add the other ingredients and cool slowly until thick.

Oak Hill Potatoes

Six cold boiled potatoes, three hard-

boiled eggs. Place in buttered baking-dish in layers; cover with a white sauce made of three tablespoonfuls butter, melted and three tablespoonfuls flour rubbed to smooth paste; add two cupfuls milk slowly; cook while stirring until creamy; season with salt and pepper to taste. Cover with buttered cracker crumbs; bake until brown.

Hashed Brown Potatoes

Chop coldboiled potatoes rather fine. To each cupful add three tablespoonfuls sweet cream, one-half teaspoonful salt, one-eighth teaspoonful pepper. Mix. Put one tablespoonful butter in skillet, when hot add potatoes, pressing them down until a smooth layer. Cook slowly until a golden brown; fold one half over the other, turn out on heated platter.

Yellow Tomato Preserves

Weigh, then scald a few minutes by pouring boiling water over them, and slip off the skins. Then take one pound sugar and one pound fruit; put a layer of sugar in jar, then layer of fruit, continue until jar is full, and let stand over night. In the morning pour off juice into kettle and boil until quite thick, carefully add tomatoes and boil very slowly until they look transparent. If desired add a few slices of lemon, seeded. Put into glass jars, and when cooked, cover. In making sweet pickle, follow the above, only using a little less sugar, and add one pint vinegar next morning and boil, or boil sugar and vinegar first and pour over; let stand; pour off and boil again.

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